VII. THE STATUS OF IMMUNIZATION -- 1993

Globally, immunization has been a great public health success story in recent decades. In the 1960's and 1970's the scourge of smallpox was eradicated worldwide by major vaccination efforts led by the World Health Organization (WHO), which received substantial support from the United States. In the last 15 years, WHO's Expanded Prograrnme on Immunization, supported by the U.S. Agency for International Development (USAID) and many others, has catalyzed dramatic increases in childhood vaccination levels, in most countries to the 80 percent level (see figure 5). WHO estimates that 3.2 million child deaths are prevented annually by these immunization programs against diphtheria, tetanus, pertussis, poliomyelitis, measles, and tuberculosis. In the last 5 years, major progress has been made toward eradicating polio, particularly in the Americas (figure 6). The last indigenous case in the Western Hemisphere was reported in Peru in 1991, but the region remains under threat of importation of polio from elsewhere in the world (Robbins, 1993; Foege, 1993).

Despite these successes, millions of child deaths caused by potentially vaccine preventable diseases still occur in developing countries each year. Immunization programs in many countries have serious deficiencies, ranging from erratic vaccine supplies, attributable to financing, procurement, and/or production problems, to poor epidemiological surveillance systems to indicate where disease outbreaks occur, to inadequate vaccine handling and "cold chain" systems, to poor service delivery. Many of the larger developing countries are able to produce some of the vaccines they need, but a major international effort continues to be required to ensure that the quality and supply of those vaccines are adequate.

All aspects of the vaccine production and immunization delivery system in developing countries are further stressed by the ambitious regional and global disease control targets. As a result, a major challenge is simply to sustain the high global vaccination coverage levels, and to put immunization programs on a sustainable footing, especially in parts of Africa and Asia. USAID has devoted a considerable portion of its child survival resources to strengthening immunization programs in developing countries.

CHILDHOOD IMMUNIZATION PROGRAMS IN THE UNITED STATES

Over the last three decades, the United States has succeeded in using immunization to drastically reduce morbidity and mortality associated with many infectious diseases, as shown in table 1. Successively the incidence of diphtheria, tetanus, pertussis, polio, measles, mumps, and rubella has been significantly controlled as vaccines for these diseases have become widely used (see appendix 7). Consequently, diphtheria, paralytic polio, and tetanus are virtually eliminated and measles, mumps, rubella, and pertussis are greatly reduced.

All 50 States now have school-entry vaccination requirements, and most of them require vaccination for attendance at preschool or day care centers. As a result, over 95 percent of American children are protected against seven childhood diseases by the time they enter school. (However, vaccine may not have been administered according to the optimal schedule for protection early in life). Coverage with more recently introduced vaccines -- for hepatitis B and *Haemophilus influenzae* type b meningitis -- is much lower but increasing, with significant effects on disease incidence as shown for the latter in Figure 7. A decline in meningitis incidence has corresponded with increasing use of conjugate Hib vaccine, since 1988. Reduction in the long-term sequelae of hepatitis B infection (cirrhosis and liver cancer) will not be evident for 20 years or more because of the long delay before their occurrence.